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ABSTRACT

The transmission of verbal information has typically been studied within the referential communication paradigm, which has tended to use restricted tasks and simple outcome measures. In this study, new insights into the nature of communication success and failure have been obtained by the use of an approach that allows meaning to be freely negotiated. Twenty adult-child pairs were tested. Mothers were paired with their own and unrelated children in a route-giving task involving maps. All subjects played both instructor and instructee roles. The task was conducted by telephone. It was expected that related pairs would show a superior level of performance because of their history of shared experience, including language. Findings revealed a close correlation in procedures used by related compared with unrelated pairs. Number of turns taken in discourse showed that experimenter judgments of message adequacy and item selection were an overestimate of the extent of shared understanding. The role of repetition and of clarification requests in the resolution of communication difficulties is examined and compared with earlier findings from paired children of the same age as those in the study. (Author/RH)

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CURRENT EUROPEAN DEVELOPMENTAL PERSPECTIVES ON DISCOURSE PROCESSES

Poster workshop at SRCD Meeting, Kansas City, 27-30 April, 1989

Negotiating route directions by telephone in children and adults

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The standard procedure for investigating children's ability to process verbal messages is the referential communication paradigm. This enables tight control of the relationship between sender's message and receiver's reaction, typically selection of referent. This approach has revealed some important information about the skills which children need to develop in order to construct informative messages and recognise ambiguity in inappropriate communication. The role of factors like comparison processes, attribution of blame following failure and the link between message, meaning and speaker and listener behaviour has been effectively demonstrated (e.g. Asher, 1979; Robinson & Whittaker, 1986).

The standard paradigm has limitations, however. Tasks are typically artificial involving selection of one item (picture) from a small series of items varying on dimensions such as size, colour and form. This in turn gives rise to messages which are little more than adejectival strings (e.g. 'The small red square one') that could be considered linguistically primitive. Success in such tasks is usually measured by adequacy of message (are the appropriate attributes reported?) and correct selection of the target referent. In some cases the focus is on the receiver's ability to recognise and deal with ambiguity in messages. Further limitations of the standard technique are the manner in which interaction is confined to the verbal channel (e.g. use of screens) and the role played by the experimenter. There are problems when the experimenter is doubling both as investigator and one half of the communicating dyad (see Lloyd, Boada-Calbet & Forns-Santacana, 1989 for a discussion of this issue).

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The research reported here seeks to remedy these difficulties by using a purposive goal oriented task (negotiating route directions with the aid of maps) and a medium that is uniquely appropriate to verbal communication - the telephone. The experimenter is totally removed from the communication situation allowing free dialogue between participants. It is argued that a proper assessment of the nature and effectiveness of the communication that results requires the use of discourse analysis as well as conventional outcome measures used in referential communication research. In particular the pattern

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of clarification requests and distribution of turns uncovers new aspects of such focused communication.

Studies have been carried out with pairs of same aged children (7 years and 10 years) and with adult pairs. This study examined the variable of kinship with the prediction that related mother-child pairs would be more efficient in the task than unrelated adult-child pairs. A history of shared communication, presuppositions, etc would be expected to facilitate performance but, lacking previous research on this topic, the precise manner in which the communication differs remains an open question.

Method

Twenty adult-child pairings were tested. These were made up from quartets of two children, matched for age, sex and educational attainment (teacher ratings), together with their mothers. The children were each recorded with their parent and the unrelated adult. The mean age of the children was 8 years 1 month. The task consisted of describing a route across a map (Figure 1). Communication was from separate rooms by telephone. Each subject had a map but one (the 'instructor') had the route to be followed marked out on a transparent overlay. For every pairing four routes were described, two with the child as instructor and two with the adult as instructor. Order of presentation was counterbalanced across the main variables: age (child first, adult first), familial status (related or unrelated) and role (instructor or instructee).

It was stressed that it was a game where the participants had to listen carefully and help each other.. Matching toy cars were provided for each subject for each route so that they could 'drive' along the appropriate 'road'. Subjects were left entirely alone during the 'trial' and the instructees were told to press a buzzer when they had finished. All sessions were audiotaped and videotaped (instructee's room only) using remote control cameras and monitored from a control room having one-way glass.

Data analysis

Full verbal transcripts were made of all route finding dialogues. Information about target location was taken from videotapes as well as other relevant non-verbal information. Standard measures of message adequacy and target selection were taken as a function of trial and map location. A set of communicative strategies for describing routes was formulated and the incidence of these as a function of the main variables is presented. An analysis of discourse was carried out focusing particularly on the instructors' directives and the instructees' requests for clarification.

Results and discussion

Table 1 shows that in terms of overall outcome kinship did not affect performance. There was an effect, however, in the pattern of communication strategies used by the different pairings. The main strategies identified were Directional (e.g. 'turn left and then straight on'), Components ('The shop with the yellow stripe over the window'), Numbering ('The third house') and Minimal ('Go to the garage'). Figure 2 shows that there was a very close correlation between respective distribution of strategy use among related adult-child pairs when compared with unrelated adult-child pairs. Pearson correlations have been carried out on the components strategy, only, giving a 0.856 correlation for the related pairing and one of 0.240 for the unrelated pairing. This shows that such cohesion is not an inevitable result of the experimental paradigm. It looks as though the shared knowledge, presuppositions and so on, that exist between the related diads has accounted for this result. It may also be that negotiation procedures work more smoothly so that although there may be contrast in the choice of strategies, the partners soon reach an agreement concerning the most effective procedure to adopt.

Number of turns is a basic measure of discourse. When allied to the two most popular measures used in referential communication it emerges that adequacy of message and identification of target may be seriously underestimating the actual course of communication. It was found that 46.7% of moves had **more** than two turns following receipt of an adequate message and that, on average, moves continued for a further 2.3 turns after the instructee had selected the target with a range of between zero and 28. Thus over the course of a trial, moving from the school to one of the houses at the top, an average of 11 additional turns are taken beyond the point at which targets are reached. These findings indicate that communication cannot be accurately measured outside a negotiating framework. On objective grounds the sender may have provided sufficient information to allow the referent to be identified but until both receiver and sender are satisfied that this goal has been attained, the intention of the communication has not been achieved.

The term 'redundancy' is frequently used in referential communication research but it often betrays a misunderstanding of the nature of communication. The merit of the approach described here is that it reveals the extent to which 'real' communication is saturated with 'redundancy'. But, in reality, it is not redundant, it is necessary. It is how the business of negotiating meaning and understanding gets done. Simply because a speaker has described, according to some rational criterion, an event accurately, does not mean that the hearer of that description necessarily has reached the point of shared understanding. These data clearly show that hearers sometimes react to adequate messages with immediate understanding,

sometimes after checking or corroborating some minor point and sometimes only after further negotiation proceeding for up to 20 or more turns. The contention, therefore, is that in treating communication as successful on the basis of experimenter judgements of message adequacy and item selection, workers may often be overestimating the extent of shared understanding, assuming this to be the goal of referential communication.

A modification of Garvey's (1979) scheme of clarification requests was used. It is given in Table 2 with illustrations from route finding protocols. A summary of the data on clarification requests is given in Table 3. Related pairs clearly make more requests for repetition (NRR/SRR) than unrelated pairs but since the absolute figures are low little can be concluded. Requests for specification and confirmation (SRC/SRS) were notably higher among adults compared with children (2.67 vs 1.75). This could reflect the fact that the SRC category, which exceeds SRS by a ratio of 4:1, is closely linked to repetition in adult speech (see examples Table 2). It has been hypothesised (Lloyd, in press) that repetition plays an important role in the Communicative Support System (CoSS) that adults typically provide for children. By repeating things adults not only check on the accuracy of what they have heard but also provide a feedback loop for the child enabling monitoring of the output which might not otherwise have taken place. This in turn can lead to the message being changed or repaired. The potential group of clarification requests (PRS/PRC/PRE) yields greater frequency among adults than children and related than unrelated pairs. As pointed out elsewhere (Lloyd, in press) this can be explained by the more cognitively demanding nature of potential requests which introduce information into the dialogue that has not been previously referenced.

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Table 1. Proportion of targets that fail to be located by instructees (%)

	Related	Unrelated	Mean
Children	21	18	19.5
Adults	8	10	9.0
Mean	14.5	14	

Table 3 Incidence of clarification requests given by instructees as a function of age and kinship (mean number per route)

Response category	Adults	Children	Related	Unrelated
Repetition (NRR + SRR)	0.24	0.22	0.32	0.15
Confirmation and Specification (SRC + SRS)	2.67	1.75	2.3	2.12
Potential information (PRE + PRC + PRS)	2.72	2.25	2.72	2.25

Table 2 Categories of clarification requests used in route finding task

Non-specific request for repetition

1. S: I mean the fourth(?) from the bottom
   L: What?
   S: On the fourth from the bottom

2. S: Right, then the one that's opposite from the other one
   L: Say that again
   S: The one that's opposite

Specific request for repetition

3. S: To the house with two trees and a chimney and two windows and a door at the side
   L: With what at the side?
   S: The door

4. S: You know the one with the roof?
   L: The one with which?

S: You know the one with the roof? There's a cross on top of there

Specific request for confirmation

5. S: Go to the church with the point on it
   L: The point?
   S: Yeah. The point at the top

6. S: Go to the one with the tree at each side of it
   L: Tree each side of it?
   S: Yeah. Not the one with the door at the side

Specific request for specification

7. S: You go near the petrol station
   L: Which one?
   S: There's some swings with zig-zags on

8. S: Count the, count the houses with the orange roofs
   L: Count how many houses with orange roofs?
   S: Right, hold on a minute (starts counting)

Potential request for elaboration

9. S: Well go up and go turn and then
   L: Go up and turn where?
   S: Left and then ..

10. S: Go forward
   L: Go forward yeah. Go to which petrol station?
   S: The one with the um, lines

Potential request for confirmation

11. S: Go straight up and turn a bit and then go to the house
   L: What the one with two trees?
   S: Yeah. Not the first one, the second one

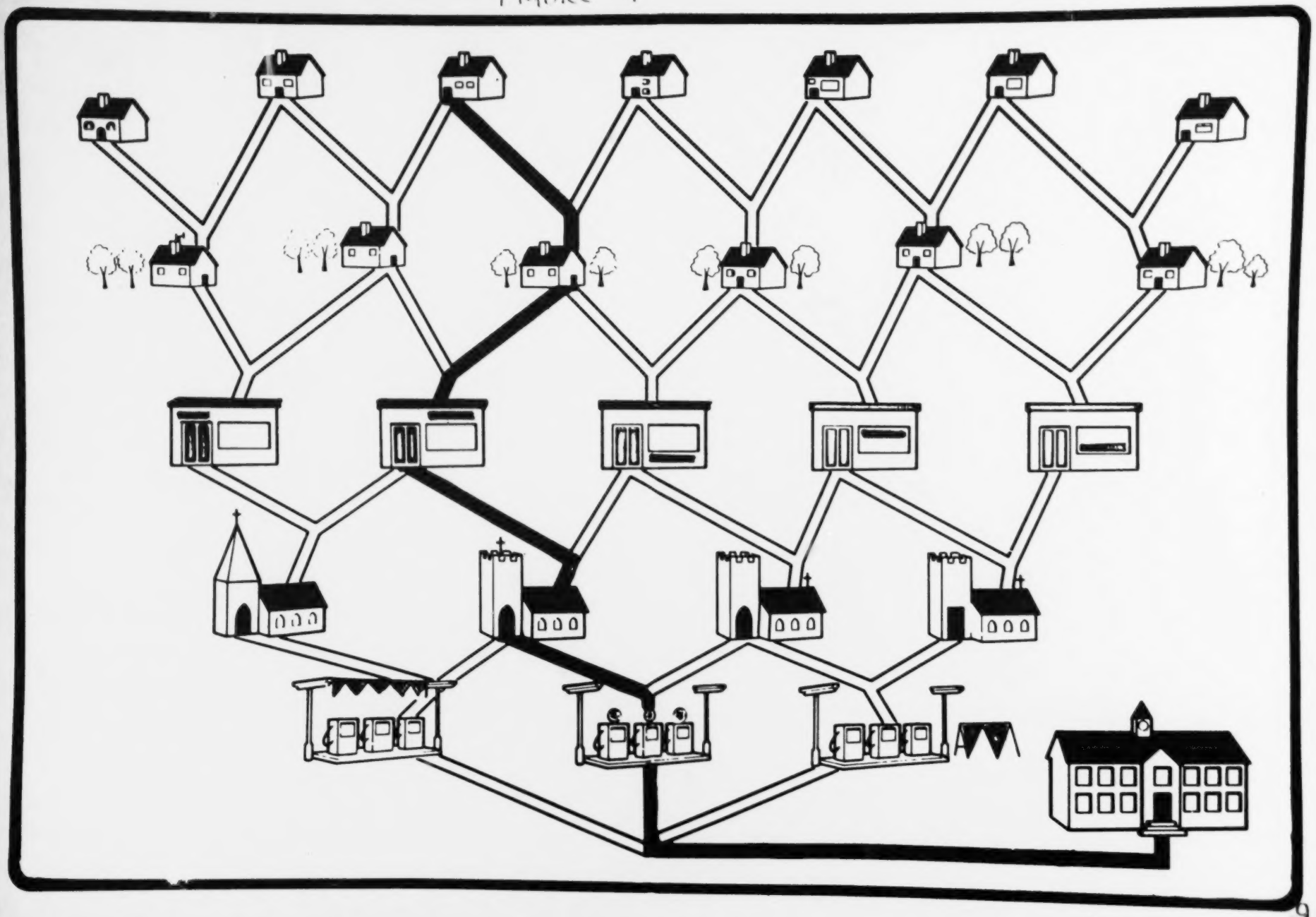
12. S: Go to the church with the cross, the second one from the last one
   L: The one with the spike, you know the one with the triangle thing at the top?
   S: No, the one like ..

Potential request for specification

13. S: Now go to the one with the line across
   L: In the window or at the top?
   S: The one with the line across at the top, the second one

14. S: The church that is like a castle
   L: The left or the right?
   S: I don't know

FIGURE 1



ABSTRACT

The transmission of verbal information has typically been studied within the referential communication paradigm. This has tended to use restricted tasks and simple outcome measures. New insights into the nature of communication success and failure have been obtained by using an approach that allows meaning to be freely negotiated. Mothers were paired with their own and unrelated children (20 pairs) in a route giving task involving maps. All subjects played in both instructor and instructee roles and the task was conducted by telephone. The expectation was that related pairs because of their history of shared experience, including language, would show a superior level of performance. Results revealed a close correlation in procedures used by related (mother-child) compared with unrelated pairs. Number of turns taken in discourse showed that experimenter judgments of message adequacy and item selection (standard referential communication measures) were an overestimate of the extent of shared understanding. The role of repetition and clarification requests in resolving communication difficulties is examined and compared with earlier results from same aged pairs of children.